

1 WHAT IS CLAIMED IS:

2 1. A drilling fluid comprising

3 an oleaginous fluid, wherein the oleaginous fluid is the continuous phase of the
4 drilling fluid;

5 a non-oleaginous fluid, wherein the non-oleaginous fluid is the discontinuous
6 phase of the drilling fluid;

7 a primary emulsifier, wherein the primary emulsifier is in sufficient concentration
8 to stabilize the invert emulsion;

9 a rheology modifier, wherein the rheology modifier is selected from the group
10 consisting of a dimer poly-carboxylic C₁₂ to C₂₂ fatty acid, trimer poly-carboxylic C₁₂ to
11 C₂₂ fatty acid, tetramer poly-carboxylic C₁₂ to C₂₂ fatty acid, mixtures of these acids, and
12 polyamide wherein the polyamide is the condensation reaction product of a C₁₂-C₂₂ fatty
13 acid and a polyamine selected from the group consisting of diethylenetriamine,
14 triethylenetetramine; and pentaethylenetetramine.

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16 2. The drilling fluid of claim 1 wherein the poly-carboxylic fatty acid is a mixture of
17 poly-carboxylic acids added in sufficient concentration so that the trimeric poly-
18 carboxylic fatty acid concentration in the drilling fluid is greater than 0.1 pounds per
19 barrel and is up to 5.0 pounds per barrel.

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21 3. The drilling fluid of claim 1 wherein the oleaginous fluid comprises from about
22 30% to about 100% by volume of the drilling fluid and the oleaginous fluid of a material
23 selected from a group consisting of diesel oil, mineral oil, synthetic oil, esters, ethers,
24 acetals, di-alkylcarbonates, olefins, and combinations thereof.

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26 4. The drilling fluid of claim 1 wherein the non-oleaginous fluid comprises from
27 about 1% to about 70% by volume of said drilling fluid and the non-oleaginous fluid is
28 selected from the group consisting of fresh water, sea water, a brine containing organic or
29 inorganic dissolved salts, a liquid containing water-miscible organic compounds, and
30 combinations thereof.

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- 2 5. The fluid of claim 1 further comprising a weighting agent or a bridging agent.
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- 4 6. The drilling fluid of claim 6, wherein the weighting agent or bridging agent is
- 5 selected from the group consisting of galena, hematite, magnetite, iron oxides, illmenite,
- 6 barite, siderite, celestite, dolomite, calcite and combinations thereof.
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- 8 7. The drilling fluid of claim 1, wherein the polyamide has a concentration greater
- 9 than 0.1 and up to 5.0 pounds per barrel.
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- 11 8. The drilling fluid of claim 1, wherein the polyamide is the condensation product
- 12 of one mole of diethylenetriamine and three moles of C₁₂-C₂₂ fatty acid.
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- 14 9. A drilling fluid comprising:
- 15 an oleaginous fluid, wherein the oleaginous fluid is the continuous phase of the
- 16 drilling fluid;
- 17 a non-oleaginous fluid, wherein the non-oleaginous fluid is the discontinuous
- 18 phase of the drilling fluid;
- 19 a primary emulsifier, wherein the primary emulsifier is in sufficient concentration
- 20 to stabilize the invert emulsion;
- 21 an organophilic clay; and
- 22 a rheology modifier, wherein the rheology modifier is selected from the group
- 23 consisting of a poly-carboxylic C₁₂-C₂₂fatty acids and poly-amides formed from the
- 24 condensation reaction of poly-carboxylic C₁₂-C₂₂fatty acids and ethylenepolyamines.
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- 26 10. The drilling fluid of claim 9 wherein the poly-carboxylic fatty acid is a mixture of
- 27 poly-carboxylic acids added in sufficient concentration so that the trimeric poly-
- 28 carboxylic fatty acid concentration in the drilling fluid is greater than 0.1 pounds per
- 29 barrel and is up to 5.0 pounds per barrel.
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1 11. The drilling fluid of claim 9 wherein the oleaginous fluid comprises from about
2 30% to about 100% by volume of the drilling fluid and the oleaginous fluid of a material
3 selected from a group consisting of diesel oil, mineral oil, synthetic oil, esters, ethers,
4 acetals, di-alkylcarbonates, olefins, and combinations thereof.

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6 12. The drilling fluid of claim 9 wherein the non-oleaginous fluid comprises from
7 about 1% to about 70% by volume of said drilling fluid and the non-oleaginous fluid is
8 selected from the group consisting of fresh water, sea water, a brine containing organic or
9 inorganic dissolved salts, a liquid containing water-miscible organic compounds, and
10 combinations thereof.

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12 13. The fluid of claim 9 further comprising a weighting agent or a bridging agent.

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14 14. The drilling fluid of claim 13, wherein the weighting agent or bridging agent is
15 selected from the group consisting of galena, hematite, magnetite, iron oxides, illmenite,
16 barite, siderite, celestite, dolomite, calcite and combinations thereof.

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18 15. The drilling fluid of claim 9, wherein the polyamide has a concentration greater
19 than 0.1 and up to 5.0 pounds per barrel.

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21 16. The drilling fluid of claim 9, wherein the polyamide is the condensation product
22 of one mole of diethylenetriamine and three moles of C₁₂-C₂₂ fatty acid.

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24 17. In a method of rotary drilling a subterranean well using a drilling fluid, the
25 improvement comprising the use of a drilling fluid including:

26 an oleaginous fluid, wherein the oleaginous fluid is the continuous phase of the
27 drilling fluid;

28 a non-oleaginous fluid, wherein the non-oleaginous fluid is the discontinuous
29 phase of the drilling fluid;

1 a primary emulsifier, wherein the primary emulsifier is in sufficient concentration
2 to stabilize the invert emulsion;
3 an organophilic clay; and
4 a rheology modifier, wherein the rheology modifier is selected from the group
5 consisting of a dimer poly-carboxylic C₁₂ to C₂₂ fatty acid, trimer poly-carboxylic
6 C₁₂ to C₂₂ fatty acid, tetramer poly-carboxylic C₁₂ to C₂₂ fatty acid, mixtures of
7 these acids, and polyamide wherein the polyamide is the condensation reaction
8 product of a C₁₂-C₂₂ fatty acid and a polyamine selected from the group consisting
9 of diethylenetriamine, triethylenetetramine; and pentaethylenetetramine.

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11 18. The drilling fluid of claim 17 wherein the poly-carboxylic fatty acid is a mixture
12 of poly-carboxylic acids added in sufficient concentration so that the trimeric poly-
13 carboxylic fatty acid concentration in the drilling fluid is greater than 0.1 pounds per
14 barrel and is up to 5.0 pounds per barrel.

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16 19. The drilling fluid of claim 17 wherein the oleaginous fluid comprises from about
17 30% to about 100% by volume of the drilling fluid and the oleaginous fluid of a material
18 selected from a group consisting of diesel oil, mineral oil, synthetic oil, esters, ethers,
19 acetals, di-alkylcarbonates, olefins, and combinations thereof.

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21 20. The drilling fluid of claim 17 wherein the non-oleaginous fluid comprises from
22 about 1% to about 70% by volume of said drilling fluid and the non-oleaginous fluid is
23 selected from the group consisting of fresh water, sea water, a brine containing organic or
24 inorganic dissolved salts, a liquid containing water-miscible organic compounds, and
25 combinations thereof.

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